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ABSTRACT

Presented is the final report of a 3-year Title III program which provided approximately 50 emotionally disturbed children (6- to 14-years-old) with special classes (10 pupils per class) utilizing behavior modification techniques and precision teaching. Explained are the project purpose of providing an instructional setting for children totally unable to function within the regular class, the project goal of returning the children to the regular class, and the project emphasis on the development of appropriate social and academic behaviors. Student selection is said to have been based on criteria such as average or above intelligence and a willingness by the parents for involvement in the program. Described are the project procedures including establishment of a baseline of social and academic behaviors, development of a plan sheet by the teacher (a sample is given), procedures of recording and charting target behaviors, classroom arrangement based on areas of high and low probability activities, and specific teaching strategies such as accentuating the positive and having students share decisions and credit. Among project outcomes reported are the expansion of the program to a class of 10 primary age mentally retarded students with severe behavioral problems, cessation of behavior control medication for all project children, return of 50 percent of students to the regular classroom, development of a parent program to instruct parents in techniques of behavior modification, inservice training for local teachers and administrators, and continuation of the program through local funding. Outlined are guidelines for precision teaching such as pinpointing the behavior. (DB)

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Final Report

of

EDUCATIONAL ADJUSTMENT CLASSES

Great Falls Public Schools
Great Falls, Montana

An ESEA Title III Project

BEHAVIOR MODIFICATION OF EMOTIONALLY DISTURBED YOUTH

1968 - 1971

William L. Findley, Project Director
Ray Beck, Project Coordinator

061487

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PREFACE

Historically, teachers have complained about the problem student who caused so many interruptions in the course of the school day that she could not successfully manage her instructional program. Some teachers devised their own means of adjusting such behavior. More generally, however, the problem was shifted to someone else.

It seems that home and social problems of our day and age are having a direct effect on the learning of an ever increasing number of students. This project evolved in our school district out of a concern for such students. We felt impelled to find a scientifically structured methodology that teachers could use effectively as educators, and determine whether or not it could be functional in a public school situation. If successful, we would salvage many students who were losing out on their educational opportunity. We decided on the behavior modification approach because it held such promise. It would be another tool for teachers to use and assist them in meeting another critical need in the classroom.

The success of the project has well been demonstrated for this school system. Not only have we enabled students to continue a successful course in their education, but even family life has been dramatically affected in many cases.

We recognize it is not a cure-all, neither is it 100 percent effective. Its success is general enough, however, that we cannot ignore it for the sake of a particular group of children.

We feel a deep sense of gratitude for the concept of ESEA Title III funding for exemplorary and innovative programming that enabled us to prove out an idea. We are particularly appreciative for the recognition given the project by the President's Council for Supplementary Centers and Services as one of forty-two innovative projects chosen for national dissemination in 1971.

William L. Findley

INTRODUCTION

Within the past five years, education of exceptional children has witnessed dramatic changes. Prior to the refinement of behavior modification techniques and the introduction of precision teaching, children who were found to be experiencing behavioral problems were excluded from the educational environment and left to the community resources which were often inadequate. Teachers, by and large, have been viewed as ones who should teach and not treat. A growing body of literature, however, attests to the impact behavior modification and precision teaching strategies have had on the understanding and modification of maladaptive behavior. This is especially important when one realizes that these principles are applicable within the framework of the public school.

In September, 1968, the Great Falls Public Schools, with the aid of a Title III, ESEA grant, undertook a three-year project designed to work with emotionally disturbed and socially maladjusted children. Heretofore, students experiencing these kinds of problems within the classrooms were suspended or expelled from school and often removed from the community to a residential treatment center. Many youngsters never found their way back to the public school setting. Montana's only facility for elementary children was the state orphanage. Until recently the state psychiatric hospital could offer only a residential center for psychiatric treatment and very little in the way of formal education.

Using a model adopted from the Experimental Education Unit at the University of Washington, the plans were drawn to include twenty children who were identified by school personnel as "emotionally disturbed." Two classrooms within an elementary building were used with ten children in each room.

The staff consisted of two master teachers and two teacher-assistants. Involvement with parents was considered a vital part of the project. A public health nurse and school psychologist, therefore, were included as part of the staff. The second year a third teacher was given the responsibility of working in a resource capacity to follow-up those

students returned to regular classes and, also, to work with teachers on a preventative basis. It became quite obvious after the first year that many of the children referred to the Educational Adjustment Classes could be helped within the regular classroom, thus alleviating their removal to a self-contained room.

Prior to the implementation of the project, the entire staff, including the supervisor of special education, spent approximately one month in training at the Experimental Education Unit, University of Washington. This proved to be a valuable and necessary experience. All staff members were given the opportunity to view the techniques of behavior modification in practical application. Lectures on the principles of behavior modification were offered the staff along with direct supervision in the experimental classrooms. Follow-up visits to the University of Washington were made again the next summer. On-site consultation was extended over two years to the Great Falls project by Dr. Norris Haring, Harold Kunzelmann, and Mrs. Mary Ann Hauck, all from the University of Washington. During the follow-up visits, observation was made of classroom procedure, data analyzed and curriculum adjustment recommended.

By way of introducing the general concept of behavior modification to the school district, Dr. Ogden Lindsley, University of Kansas, lectured during the 1968 orientation week. Attending these sessions were one thousand teachers and administrators from Great Falls. Again in February, 1971, Dr. Lindsley returned for a three-day workshop oriented toward strategies of precision teaching and worked with approximately two hundred people, including teachers, principals, administrators, university professors and parents.

SUMMARY OF PROJECT PROCEDURES

Selection of Students

The purpose of the Educational Adjustment Classes was to provide an instructional setting for those children who were totally unable to function within a regular classroom setting. The goal of this program was to eventually return the children to their regular classrooms. The project focused on developing both appropriate social and academic behaviors. This approach was based on the general assumption that academic achievement and appropriate social behavior was necessary for complete, normal classroom adjustment. From a school population of twenty-one thousand students, an initial thirteen children were selected for enrollment. Chronologically their ages ranged from six to fourteen years. Selection was based on the following criteria:

1. The student should have average or above intelligence. It was felt that those students whose IQ fell within the retarded range could be helped within the existing special education program.
2. The student should be functioning at least one grade level below his present grade placement. The rationale was that children who are able to achieve at grade level could, in all probability, be worked with in the regular classroom.
3. There should be a willingness of the parents for involvement themselves in a continuous in-service training program with the family counselor. Data has unquestionably supported this concept. Parents who did involve themselves with a home program saw positive change in a relatively short period of time.
4. The student's behavior in the classroom should be so severe that he could no longer function within that setting. Referring teachers were expected to pinpoint observable behavior and record the frequency of that behavior. In addition, at least one academic behavior was counted for the purpose of obtaining a rate of correct responses and errors.

Baseline or "Before" Phase

Once a student was admitted to the program, a period of two weeks or ten academic days was used to establish a baseline of the rate of social and academic behaviors. It was during this phase that all variables were held constant. For example, once the curriculum was given a child, there were no adjustments and the classroom environment was consistently maintained. The teacher and assistant were asked to respond to inappropriate behavior much the same as the referring teacher. If a child should get out of his seat or talk out, he would be told to sit down and be quiet. Free time, ten minutes on the hour, was given the child incontingent of his social or academic behavior.

During the "Before" Phase an outside observer and the classroom teacher pinpointed, recorded and charted behaviors that would become target behaviors once baseline was established. The child was kept unaware of the counting procedure.

One major drawback in having more than two or three children on baseline during the same period of time, was the "modeling" effect. It was apparent with the first group of youngsters that during baseline period, some students began modeling their behavior after one another. It seemed that the students would actually reinforce each other's inappropriate behavior, thus increasing the rate of that maladaptive behavior. As one can see in Figure 1, there was a wide range of "talkouts" during the first week; from a low of one every eight minutes by one boy, to a high of three per minute by another. Computed over a 300-minute day, the child running off three per minute was actually talking out 900 times per day. At the completion of the three-week baseline period, all eight children were talking out (yelling, swearing, and talking out-of-turn), more than four times per minute or 1,200 times per day. Careful consideration should be given to having more than two or three students on baseline during the same time period.

Following the baseline and prior to the introduction of modification procedures and precision teaching strategies, a ratio or interval was determined for each student. Based on the frequency of an inappropriate social behavior such as "talkouts," a schedule of positive reinforcement and/or negative reinforcement was determined. If, for example, Billy was found to be "talking out" at .1, or once every ten minutes, a

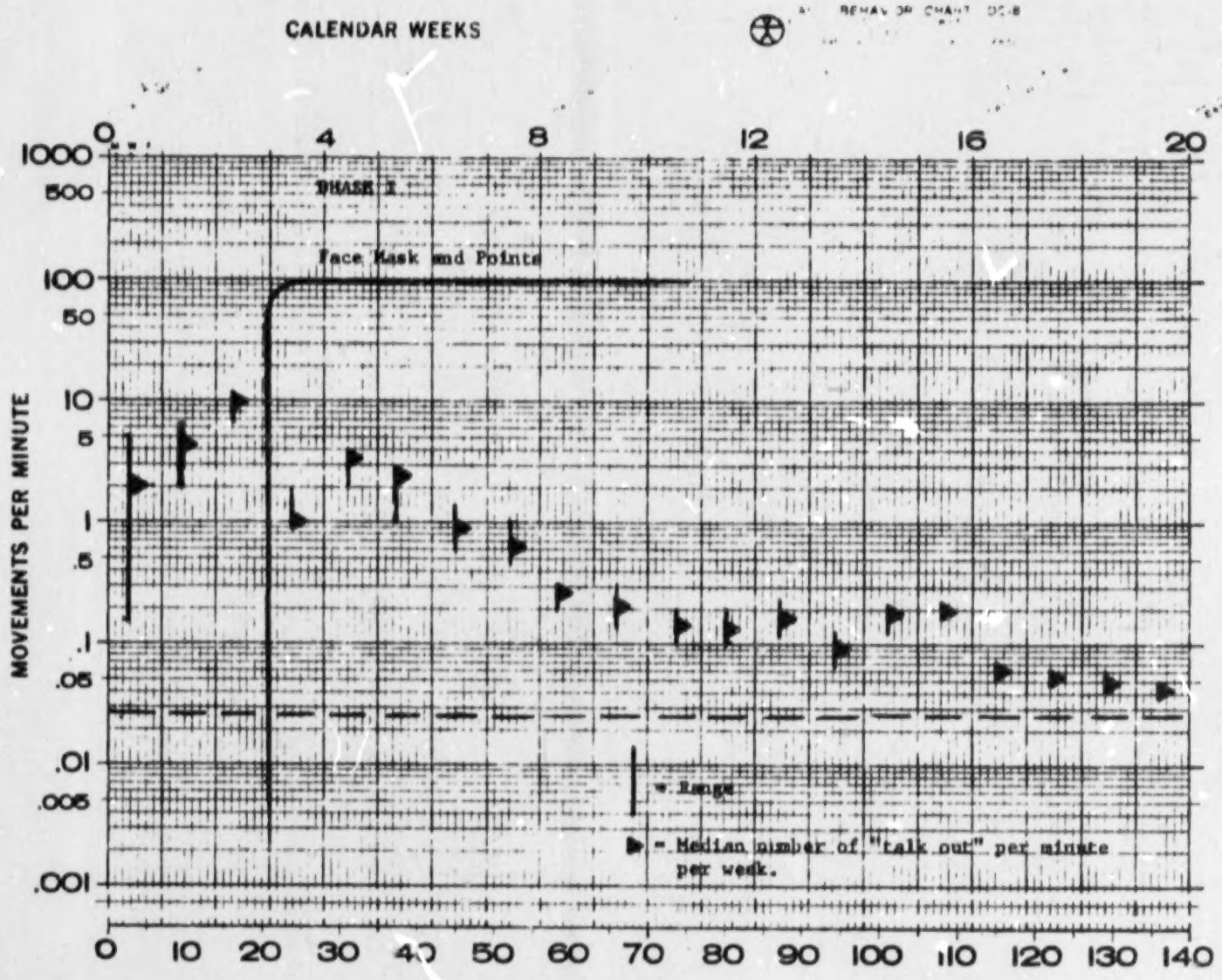

FIGURE 1

Page 5

H. Kunzelmann	& R. Beck	R. Bollinger
SUPERVISOR	ADVISER	MANAGER
E. A. C.		
DEPOSITOR	AGENCY	

Primary Class			Talk OUts
BEHAVER	AGE	LABEL	MOVEMENT
R. Bollinger			
CHARTER			

schedule of reinforcement was offered by the teacher just prior to the ten minutes of no "talk outs." Billy would be rewarded by the teacher or assistant teacher for nine minutes of non "talk out" behavior. On the other hand, a ratio of one-to-one may have been contracted with Billy. After each "talk out" a surgical face mask would be worn for five minutes. A timer was set and placed on the student's desk.

Paying off for correct academic responses was also an important dimension in the Educational Adjustment Classes. Ratios for schedules of reinforcement were determined for each child in all academic subjects. Thus, Tom, who was quite good in spelling, but poor in arithmetic, would be on a higher schedule of reinforcement for his math than for his spelling.

Plan Sheet

Once the teacher selected a target behavior for modification, a plan sheet was filled out describing the procedure she intended to use. As can be seen in Figure 2, the manager (teacher) selected "talk outs" as a deceleration target. In the first column under Program she listed: (1) the behavior, (2) what period of time during the day the behavior can occur, and (3) the days of the week. Under Antecedent, she included (1) who was present in the immediate environment, (2) what was being presented to the student, and (3) how was it being presented. The Movement Cycle was previously identified as "talk out" and was (1) being recorded for thirty minutes, (2) by the teacher and student. The Arrangement selected by the manager was a ratio of one-to-one, meaning that for every "talk out" a face mask was worn by the student. The Arranged Event is in a sense the conditions under which face masks will be worn, i.e., the teacher would put the face mask on the student to be worn for five minutes. The bottom half of the plan sheet indicates that a contigency was also set for ten minutes of non "talk out" behavior. On an interval of ten minutes, the teacher awarded two points which could be exchanged for two minutes of free time.

The second plan sheet, Figure 3, shows an example of an academic behavior. The student was sampled for a one-minute interval in oral reading and was awarded one point for every thirty words read correctly.

FIGURE 2

PLAN SHEET # 1 FOR Bill TARGET A [ ] M [ ] D [X] PINPOINTED BY Pupil [ ] Manager [X] Advisor [ ] DATE 3-5-71

LOCATION E. A. C. MANAGERS D. Boykin

PROGRAM	ANTECEDENT	MOVEMENT CYCLE	ARRANGEMENT	SUBSEQUENT
(Title plus details time(s) and Dates)	(Presentation criteria i.e.,who, what, how)	(Record: how long, by whom, how)	(By whom Ratio or Interval)	(Presentation criteria, i.e., who, what, how)
Talk-outs 9:00 - 9:50 Mon. - Fri.	Teacher Peers Aide Scott-Foresman Reader Student sitting at desk	30 minutes Teacher & Student Wrist counter	Teacher 1:1	Student places face mask on for five minutes
			10 minutes of non talk out	2 points plus free time

FIGURE 3

PLAN SHEET # 1 FOR Jim TARGET A [X] M [ ] D [ ] PINPOINTED BY Pupil [ ] Manager [X] Advisor [ ] DATE 2-19-71

LOCATION E.A.C. MANAGERS L. Pikutis

PROGRAM (Title plus details times(s) and dates)	ANTECEDENT (Presentation criteria i.e., who, what, how)	MOVEMENT CYCLE (Record: how long, by whom, how)	ARRANGEMENT (By whom Ratio or Interval)	SUBSEQUENT (Presentation creiteria, i.e., who, what, how)
Oral Reading	Teacher	1 minute	30:1	Points for free time
10:00 - 10:05	Peers	Teacher		
Mon. - Fri.	Scott-Foresman Reader	Hand tally counter		
	Student read orally to teacher			

FIGURE 3

Recording and charting Procedures

Upon entering the Educational Adjustment Class, each student's deficits were identified and pinpointed. The frequency or rate of occurrence of academic responses and social behaviors were recorded on a daily basis. Along with this, a pediatric examination and social history was gathered. Psychological testing as we have traditionally known it was held at a minimum. This is in contrast to the traditional approach of using various forms of psychodynamic evaluations such as DAP, CAT, Rorschach, etc. The only standarized test used was the Wide Range Achievement Test for pre and post test measurement.

Ordinarily when one thinks of measuring a student's progress, various psychometric tests such as achievement and IQ tests are used. The rationale being that a sample of the student's behavior is obtained and teachers respond to that sample accordingly. In reality, however, assumptions based on a sampling can often be misleading due to the fact that this is an indirect measurement. Continuous measurement and assessment on a daily basis provides a means of precise feedback to the teacher and the student. Remedial programs based upon decisions that are made after daily assessment offer the teacher more efficient ways of instructing her students and for effectively communicating with others. Using continual and daily assessment the teachers in the Educational Adjustment Classes were able to talk with parents more precisely and offer realistic information on the progress of their children.

Once behavior had been pinpointed and recorded, the frequency was plotted on six-cycle semi-logarithmic chart paper. For those behaviors such as "day dreaming" and "time-away-from-task," a percentage was used. This procedure was routinely done on a daily basis for each child. Advantages of the logarithmic scale are (according to Kunzelmann, 1970):

1. The logarithmic scale presents a picture that cannot be shown on an arithmetic scale.
2. It converts absolute data into a relative comparison without computing.
3. The scale shows the relative change from any point to any succeeding point in a series.
4. The scale retains the actual units of measurement of the absolute data.

5. Such a scale also reveals whether or not the data follows a consistent relative change program.

In addition, behavior that occurs as seldom as once per day to as high as a thousand per minute can be plotted on this chart paper.

Teachers and other staff in the Educational Adjustment program have found the continual assessment and use of the chart (as a means of immediate feedback) to be an invaluable tool.

Physical Structure

The classrooms were divided into areas of high and low probability based on the Premack principle. As can be seen in Figure 4, the area of low probability was the academic area while the high-strength area assured the student of a high probability of success. Contingent upon appropriate academic and social behavior, the students earn points in the low probability area which could be exchanged for free time in the high-strength area. Within the high-strength area were located such items as tape recorders, record players, games, toys, models, comic books, hamsters, gerbils, and other small caged animals. The gymnasium was further used as an area where a student could spend free time which he had bought with earned points.

Each student had a double desk which allowed the teacher to sit during special help sessions. The resource area provided a language master and other teaching machines where a student could work at his own pace.

An observation room equipped with two-way mirrors gave observers, such as parents and professional visitors, opportunity to view the various classroom procedures. Video tape equipment was made available for teachers to view their strategies of attending and responding to the various students.

With ten children in each room, teachers found themselves managing approximately forty-five different instruction levels per day. Each student was totally on an individualized program covering the basic academic subjects; reading, spelling, arithmetic, language, handwriting, social studies, phonics and science. Use of programmed materials proved helpful from the standpoint of offering sequential steps in the acquisition

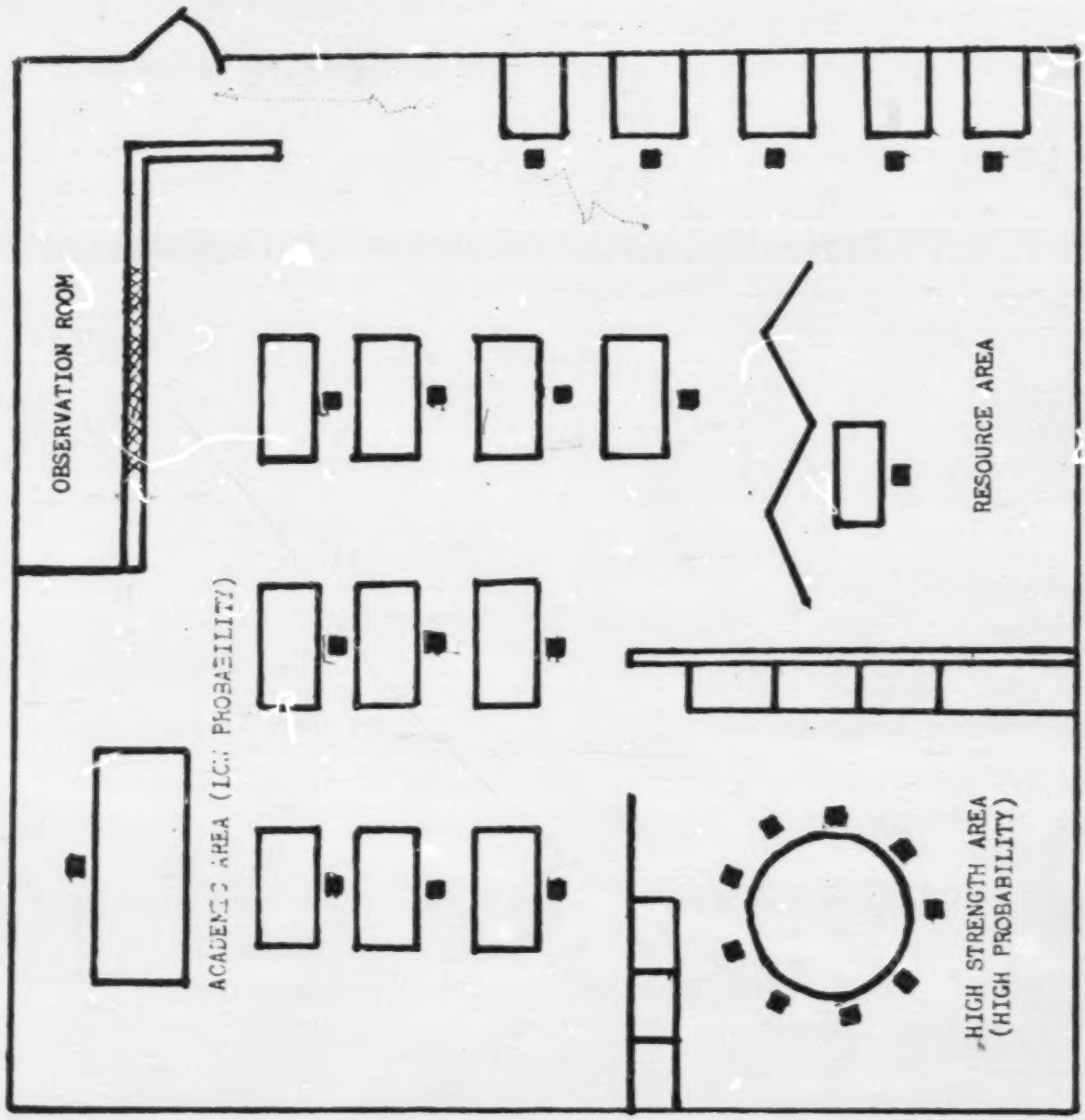
OBSERVATION ROOM
RESOURCE AREA
ACADEMIC AREA (LOW PROBABILITY)
HIGH STRENGTH AREA
(HIGH PROBABILITY)

FIGURE 4

of basic skills and giving the student immediate feedback. Once the student approached his true grade level, programmed instruction was, for the most part, phased out and replaced with the curriculum the child could expect upon his return to the regular class.

An Event Sheet developed at the Experimental Education Unit at the University of Washington, was placed on the students' desks each morning. See Figure 5.

EAC Hourly Event Sheet

Pupil Name. Date:

Time	Cont. Init.	Error	Corr.	Pre-Cum. #	Consequences	No. Taken
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

Figure 5

This instrument was used for recording the number of pupil-teacher contacts per day along with the number of correct and error responses the child made in each of his academic subjects. Based on ratios, students were awarded points for correct responses and a tally was kept according to the total number of points earned. Minutes spent by the child in free time activity were also counted. Each student was given a 60-minute timer and used it to keep track of the amount of free time as he used it. At the completion of the 300-minute academic day, the teacher or her assistant tallied the rate of academic and social responses and plotted these on the various charts. During the third year of the program, students were taught to do their own counting and charting.

Because the instructional aspect of the program was completely individualized, a student upon completing his initial assignment could move on to his next academic subject. This approach gave each pupil latitude to work at his own rate and pace. Many youngsters completed an entire year's work in less than one semester. One nine-year-old boy accomplished three years of academic work in a one-year period.

The entire instructional program for the day was placed on the student's desk in individual folders each morning. The pupils were awarded points for entering the class and beginning their work without prompting from the teacher.

Although all academics were recorded and charted for the entire day, social behaviors, on the other hand, were randomly sampled for approximately forty-five minutes. During this time, a trained observer monitored the classroom from behind the one-way mirror.

BEHAVIOR MODIFICATION AND PRECISION TEACHING STRATEGIES

Behavior modification and precision teaching developed from basic principles of learning theory laid down by Professor B. F. Skinner in the 1930's. His work with small animals provided the impetus for one of his students, Dr. Ogden Lindsley, to extend the principles of operant theory to education. In 1965, Lindsley and his students began working on what is today known as "precision teaching." Along with offering a fresh approach to the education of exceptional children, the methods and procedures lent themselves to experimental design and assessment.

As the Educational Adjustment Class staff began to explore and use behavioral principles, a basic assumption was necessary, i.e., "Behavior, good or bad, is learned and controlled by its consequences." Initially it was somewhat difficult for the staff to totally accept this concept, as most teacher training has been oriented toward the psychodynamic and medical model, with little attention given to learning theory.

Labeling of children as "brain damaged," "psychotic," "neurotic," "dyslexic," etc., gave way to pinpointing observable behavior such as "out-of-seat," "talk outs," "hitting," "kicking," "biting," etc. By describing rather than explaining behavior, it negates a concern for underlying cause. How often have we heard, when watching a child in and out of his seat, that the reason he exhibits that kind of behavior is because he is brain damaged? This kind of explanation excuses behavior and explains it rather than describes it.

Child Knows Best

During the early stages of the project, teachers and other staff members often found themselves selecting tactics in hopes of bringing about appropriate change without knowing if the reinforcer had real meaning to the child. Decisions were made on the basis of staff get-togethers without the child present. For example, M & M's were used to reinforce appropriate behavior. It was soon evident, however, that some children disliked chocolate. Although the data communicated to the staff that the tactic was not working, it still took more time than if the child

had been consulted in the beginning.

When Bruce, an eight-year-old, autistic boy, entered the Educational Adjustment Classes, he ran off a very high rate of "talks-to-self," "laughs-to-self," and masturbation behavior. Weeks were spent attempting to select the appropriate consequence to decelerate this type of grossly unacceptable behavior. Unfortunately, the rate did not decelerate and Bruce was making little academic progress. As the teacher systematically selected various tactics, she came upon the idea of rearranging Bruce's curriculum to be more meaningful. After a week of observing Bruce in his free time activity, it became apparent that he had a strong interest in trains. Following this observation, the teacher designed a curriculum oriented around the world of trains. His math, spelling, writing, and reading were selected from three books related to trains. Within two days the rate of inappropriate behavior began decelerating to an acceptable level. At this point a noticeable change was also found with increased academic responses.

Accentuate the Positive

A recent study completed in the mid-west among teachers in regular classrooms showed that eighty percent of responses to children were negatively oriented. In other words, teachers were attending and responding eight out of ten times to negative and unacceptable behavior. Staff members in the Behavior Modification project made an earnest attempt to reinforce or attend to appropriate behavior in a positive way eighty to ninety percent of the time. Each teacher wore a "sticky" (small piece of masking tape) on her wrist and recorded by means of self-count, the number of positive responses verses negative responses. One teacher found that she had increased her positive feedback from fifty to ninety percent. The students' academic and social gains were obviously reflected by this particular approach. Many of the students found it interesting and enjoyable to count their own positive and negative responses along with the teacher's.

Another tactic used to accentuate the positive was the circling of correct academic answers with a green pen and avoiding the red check marks for wrong answers. At the top of each worksheet, the number of correct answers was recorded rather than the number wrong.

It is unrealistic, however, for any classroom teacher to totally ignore all unacceptable behavior and reinforce only the appropriate. At times the staff had to consequate maladaptive behavior. If, for example, a student was physically abusing another child, destroying equipment, or hurting himself, the teacher usually consequated it by removing the child to a time out room for fifteen minutes. This area was void of any interesting stimuli and served as a neutral situation.

The important dimension to keep in mind is that "behavior which is reinforced tends to repeat itself," and, therefore, one should make every effort to reinforce positively behavior which is appropriate to the desired target or terminal outcomes.

Share Decisions and Credit

Along with the "child knows best" strategy, an effort was made to share decisions and credit with the students. During routine staffings once a week, students whose data indicated little or no progress were brought to the staff meeting and program changes were discussed. The child was asked to be a part of the decision-making team and offer any suggestions. One child suggested he not be allowed lunch unless his math was completed correctly each morning. Another suggested he be allowed to take a day off from school if he could save 300 points on the basis of appropriate social behavior. Bryan, a nine-year-old boy, explained during one staff meeting, how teachers and students could shorten the length of time taken to plot daily work. His suggestion proved out and from that point on Bryan helped teach others, including professionals, how to chart on six-cycle semi-logarithmic paper. Other students periodically offered suggestions regarding tactics that might be helpful with a particular problem child. In general, an atmosphere of complete teacher-pupil involvement was generated using the strategy of "sharing decisions and credit."

Chart Sharing

As the students began charting and recording their own behavior, a period of time was periodically set aside to share charts with their peers, including the staff. A conference room equipped with overhead projectors was provided and those students with charts showing behavioral

changes were given the opportunity to discuss the target behavior and whether or not the appropriate change was being brought about. This session was called by one student "Bring and brag."

The staff routinely held weekly meetings to which outside visitors were invited. School district personnel and staff from the State School for the Deaf and Blind presented cases on the overhead projector. A contingency was established stating that actual data must be presented along with narrative reports. During these meetings, Educational Adjustment Class staff were required to present at least three charts on individual students. A time limit was set of five minutes per teacher.

Program Tactics

Numerous tactics have been tried in attempting to bring about desired change in maladaptive behavior. Initially the program reinforcers consisted chiefly of tokens, candy, points awarded for appropriate behavior and a degree of physical restraint for unacceptable behavior. At this point the difference between "reinforcement" and "bribery" should be pointed out. By definition, bribery means a pay-off prior to the performance while reinforcement must follow the performance.

By and large, teachers systematically reinforced appropriate behavior with points which were redeemable for minutes of free time. Some students turned in earned points immediately while others chose to save for longer term goals. A store was arranged allowing students to buy such things as models and toys. The pupils were given the opportunity of selecting an item and then buying it toward the end of the week. One teacher found that certain items were not selling and subsequently held an auction sale. Field trips were periodically used to give students the opportunity of spending points for other than high-strength items. Trips were announced two weeks in advance along with the number of points required. Swimming, roller skating, and picnics proved to be highly reinforcing. The high light of the series of field trips was, without question, the annual snow mobile trip. For that an entire day was planned and each student charged 300 points. All students immediately began saving and no one missed the trip.

Students were also given the option of saving or accumulating

their points for longer term goals. One pupil saved enough points to take a day off from school and go hunting with his father. Others bought gerbils, guinea pigs and other small animals. Girls were offered beauty shop appointments.

Upon arriving at school each morning, all students were given four tokens to keep in their pocket during the day. As inappropriate behaviors occurred, any staff member, including the custodian, could take a token from a student. Each token lost after the first one, resulted in a half-hour after school. Most of the time it necessitated their walking home because of missing the bus, or their parents had to pick them up. This tactic proved quite successful in controlling behavior on the playground, lunch room, and halls.

It has been said that "talk outs" and "out-of-seat" behaviors are probably the number one and two behavioral problems American teachers face. Among the so-called hyperactive, this is especially acute. A tactic of using a surgical face mask and a seat belt, proved most successful. The contingency stated that for every time an unacceptable "talk out" or "out-of-seat" occurred, a face mask or seat belt would be worn for five minutes. As can be seen in the case study charts the behavior decelerated to an acceptable level within a relatively short period of time. It must be cautioned, however, that it is equally as important to reinforce positively, "in-seat" behavior and non "talk outs."

Self Count

Helping the child to become more aware of his maladaptive behavior prompted the Educational Adjustment Class staff to ask each student to self count a target behavior on a continual daily basis. The students, by using a "my count sheet," piece of masking tape or a wrist counter, recorded both an appropriate (acceleration) and inappropriate (deceleration) behavior. Some chose more than just a social behavior and also began recording and charting academic responses. Several charts where children used self count as the initial tactic are included with the case studies. This particular strategy allowed the child more responsibility and expedited self management.

Timer

One tactic that all teachers found successful was the use of a 60-minute oven timer. Randomly set by the teacher, the students would be awarded points if, upon the bell ringing, they were in their seats, quiet and attending to the task. Initially there was a high schedule of reinforcement; the bell would ring every five or ten minutes, however, within a few days longer intervals were used. After two weeks setting the timer was no longer necessary and natural consequences became the reinforcers.

Natural Reinforcers are Best

Numerous studies have repeatedly demonstrated the effectiveness of tokens, candy and other tangible reinforcers. In an emergency situation or with special problems, this probably is the best and most expedient tactic. There has been, however, a recent movement among the so called behavior modifiers away from the more primary reinforcers to natural consequences. During the past year, teachers in the Educational Adjustment Classes project began systematically using natural reinforcers such as smiles, touches, kind words and teacher attention in place of the traditional tokens and points. An effort was directed toward using only natural consequences that would be available to any classroom teacher whether in a special self-contained room or a regular classroom.

PROJECT OUTCOMES

Mentally Retarded Class

The success during the initial year of the project prompted the addition of a third class. Ten primary age, mentally retarded students were selected on the basis of severe behavioral problems and academic deficits. Through individualized instruction and application of precision teaching strategies, two of the ten were integrated back into a regular classroom after approximately eleven months in the program. Four others were returned to their previous special education classes. Academic gains, as measured by classroom performance and the Wide Range Achievement Test, showed a mean gain of nine months for an academic year. It is particularly significant when one considers that these students achieve the same level as would be expected of a so-called average child.

Medication

Approximately seventy percent of those children enrolled in the Educational Adjustment Classes were on medication prescribed for control of behavior. Ritalin, dexedrin, phenobarbital and dilantin were common drugs for those students. In a program worked out ahead of time with the student's pediatrician, all medications designed to control maladaptive behavior were gradually discontinued. The data clearly points out that with systematic application of positive and negative reinforcement coupled with a structured environment, medication was not needed. An exception to this was two children known to have seizures. In these instances, the pediatrician felt it necessary for them to continue on anticonvulsant medication. Failure to arrange appropriate experimental conditions such as a double blind study or a reversal design, prevents making a statement supporting that children improve significantly from discontinuance of medication; however, the data does suggest there was no evidence of regression. If nothing more, parents no longer faced the monthly expense of the corner drug store.

Returnees to Regular Classroom

At the completion of the third year, approximately fifty percent of the students had been returned to the regular classroom. Of the twenty-five children, nineteen are maintaining their social and academic behavior in accord with regular classroom standards. Only one twelve-year-old girl has been forced to return to the special classes.

It was interesting to note that among those students termed as "unsuccessful" in their regular classroom adjustment, all but one was of junior high and high school age. Caution might be expressed in terms of the effectiveness of behavior modification application at the secondary level. It may be that environmental control is much more difficult with older students than with elementary age children. Reinforcers probably take on different meanings once a student is more concerned with peer approval and less concerned with his teacher and parents.

Once a student was considered ready for return to regular classroom, a "phase out" period was begun. It was during this time that the strategy of "little steps for little feet" was used. Instead of returning a student full time, a shaping process was used where an hour per day was spent in the regular classroom while the remainder of time was spent in the Educational Adjustment Class. Gradually the time in the regular classroom was increased so that by the end of approximately six weeks, the student was full time in his new classroom. In order to insure success, the student started his phase out period spending the first hour in an academic area where he had previously demonstrated a high probability of success.

Parent Program

During the last two years of the project the major emphasis was placed on helping parents establish precise management procedures in the home to compliment the school program. A family counselor who routinely made home visits and, at least once every six weeks, asked the parents to visit the Educational Adjustment Classes in order to observe their children interacting with other students and also the teacher. A number of requests were made of the counselor to aid parents whose children were not enrolled in the Educational Adjustment Classes but who were experiencing behavioral problems in the home.

Once it became evident that the techniques of behavior modification were as applicable in the home as in the classroom, parent groups were organized and met on a weekly basis. The parents in groups of ten were taught to pinpoint, record, chart and systematically dispense reinforcers. Each parent was required to show data from the previous week to the entire group. Approximately seventy percent brought about appropriate change in the six week period. At the completion of three years, nearly ninety parents had received training in behavior modification and precision teaching. Data gathered over the three year period clearly points out that those parents who were willing to engage themselves in a management program in the home, found their children more ready to return to a regular classroom situation sooner than those who did not.

Resource Teacher

During the second year of the project, a resource teacher was added to the staff. The primary responsibility of this person was to help regular classroom teachers establish programs within the realm of the child's regular class. Attacking the problem early once the child started showing behavioral and emotional problems, generally prevented the student's removal to the self-contained Educational Adjustment Class.

Once a student was referred by the regular teacher, a visit was made to the school. Precision teaching strategies were discussed and the teacher asked to pinpoint and count the particular behavior for at least one week. Following this the resource teacher returned and a meeting was held with both the teacher and the child. During this session the child was requested along with the teacher, to count his behavior on a daily basis and then chart the behavior. In at least forty percent of the cases, a "self count" was sufficient to bring about desired change. Other tactics such as points and tokens were used with the more difficult problems.

One difficulty the resource teacher experienced was the common complaint by the regular teacher that counting and charting took too much time away from the instructional day. That problem was overcome by again having the student chart his own behavior or ask other students to count a particular behavior in a child. Once the teacher found success in using these procedures, she expanded them to include the entire classroom.

During the past two years, approximately two hundred children have been helped with the aid of the resource teacher. Normally the resource teacher carried a case load of approximately forty students.

In-Service Training

Keeping teachers abreast of the growing impact behavior modification and precision teaching has had on education was a continual concern. During the three years, approximately thirty-five workshops were conducted for local teachers and administrators and also, for outside district personnel. Nearly 850 professional visitors toured the classes from October, 1968 to June, 1971. During their visits time was allowed for observation of the classrooms along with lectures and demonstrations. As a result, many school districts within the state asked for consultative services in order to set up programs based on the Great Falls model. To date, 227 teachers and other special education staff such as speech therapists and psychologists have been trained. Behavior modification and precision teaching programs are now being used in sixteen communities within the state.

National Award

The President's Advisory Council for Supplementary Centers and Services, in June, 1971, awarded the Great Falls project the Innovative Project Award. As a result of this recognition, a summary of the project will be included in a sixty page report of which 10,000 copies will be disseminated across the country.

Continuation of Program

Upon the completion of federal funding, the Superintendent and Board of Trustees of School District No. 1 whole heartily supported the continuation of the project under the district's general budget.

Plans are currently being made to implement precision teaching within the entire special education department in the Great Falls system. Many of the teachers have been implementing these procedures to some degree for the past two years.

BECOMING A PRECISION TEACHER

There are several guidelines that are critical for any teacher to follow who might want to implement precision teaching after this model. They are outlined below.

1. Pinpoint the behavior
   a. Select a behavior that will give the child a chance to show acceleration, i.e., correct responses rather than errors.
   b. Pinpoint movements that can be observed or measured.
   c. Select behavior that will result in moderate rates. If the amount of behavior is heavy, slice it "thinner," or "little steps for little feet."
   d. Pinpoint the "action" not the "word."
2. Count and chart
   a. Obtain an accurate measure of the frequency of the behavior you have pinpointed.
   b. Counting is not enough, "Care Enough to Chart."
   c. Display the frequency obtained graphically so that all can see.
   d. Have the child count and chart his own behavior.
3. Select and arrange environmental events
   a. "Child Knows Best"
   b. "Share Decision and Credit with Child"
   c. "Accentuate the Positive"
   d. Natural consequences are best
   e. Consequate "actions" not "words"
   f. Make "data diagnosis" and "data decisions"
4. Try, try again
   a. If at first you don't succeed, try, try again--guaranteed success by third try

CREDITS

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